



## Mammal Mail

The Newsletter of the Tree-Kangaroo & Mammal Group

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### **What's Going On? Don't Miss These Upcoming Events**

**Thurs, 6 FEB: 5:30pm** Committee meeting at the Malanda Hotel, followed at **7:30pm** with a presentation by Avril Underwood, "Scat talks: the use of poo in animal conservation"

**Thurs, 6 MAR : 5:30pm** Committee meeting at the Malanda Hotel

**Thurs, 3 APR: 5:30pm** Committee meeting at the Malanda Hotel, followed by a presentation at 7:30pm—topic and speaker to be announced.

### **Notice to All Tree Kangaroo and Mammal Group Members**

In keeping with requirements under the Associations Incorporation Act, the Tree Kangaroo and Mammal Group Incorporated (TKMG) is herein notifying all members that, through Aon Risk Service Limited and QLD Water and Landcarers, Inc., TKMG hold public liability insurance in the amount of \$20,000,000. A copy of the certificates of insurance and further details about the public liability insurance held by TKMG is available to any member by contacting the Secretary, Simon Burchill via e-mail ([sbburchill@gmail.com](mailto:sbburchill@gmail.com)) or telephone: 0407-091-347

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### **Scat Talks: the use of poo in animal conservation**

*A presentation by Avril Underwood*

Come to the Malanda Hotel on February 6<sup>th</sup> at 7:30pm to hear a talk by James Cook University PhD student, Avril Underwood. Avril began her scientific career jumping off boats in croc-infested waters on the hunt for box jellyfish but has become interested in population genetics and how genetic information can be used to show how animals interact with each other and their landscape. The opportunity arose to use her background in genetics within a conservation

setting so she hung up her stinger suit and headed into the rainforest. Avril is currently examining the application of non-invasive sampling techniques to determine ecological characteristics and population genetic patterns of rainforest mammals.

Avril will be talking about her current project which focuses on the population genetic ecology of 5 of our larger arboreal mammal species (Lumholtz tree-kangaroo, coppery brushtail possum and 3 species of ringtail possum) found in the Wet Tropics. Unlike traditional genetic methods, her techniques don't require a tissue sample, she just needs to find a bit of 'poo'. Avril hopes that these little 'leftovers' can unlock a wealth of information such as abundance across the different landscapes of the Wet Tropics, limits to distribution, population structures and population health of our charismatic fauna. Yes, the might 'poo' can uncover all these secrets if used in the right way! Avril's goal is to increase the understanding of how these species use the landscape in order to aid in management practices both now and under future land-use change scenarios.

This promises to be an interesting talk so join us at the Malanda Hotel, Thursday February 6<sup>th</sup> at 7:30 pm.

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## **Converting pasture to rainforest—the easy way?**

*By Cath Moran*

Wouldn't it be great if we understood more about how to manipulate natural processes of regeneration on cleared land? Everyone can think of a site where doing traditional revegetation would be too costly or logistically difficult. Also, to do large-scale, landscape-wide revegetation, we need lower-cost but efficient methods. The ability to work over large areas will be important in restoring habitat and improving landscape connectivity to enable shifts in species' distributions under changing climatic conditions.

TKMG was successful in gaining funding from the Norman Wettenhall Foundation to support some local work looking into regeneration on abandoned pasture land in high-altitude areas of the Tablelands. This is part of a large project aimed at removing and reducing barriers to natural rainforest regeneration. This broader project involves collaboration between researchers from Griffith University and The University of Queensland, the Tablelands Regional Council Revegetation Unit, the School for Field Studies, the Wet Tropics Management Authority, Conservation Volunteers Australia and landholders.

## ***It's raining seeds...***

Natural regeneration of vegetation on cleared land starts with the seeds that are brought on to the site. The seeds of most native rainforest plants are fairly short-lived in the soil and, especially if the area has been grazed or cultivated, there won't be a lot of soil-stored seed (other than of grasses). So, seed input from nearby forest will be the main way that plants are able to recolonise the site. This seed input is known as 'seed rain'.

The majority of rainforest seeds are moved around (dispersed) by animals. In Australian rainforest areas, fruit-eating (frugivorous) birds and bats are the main seed dispersers, but other animals such as musky rat-kangaroos and native rodents disperse seeds as well. Because frugivorous birds and bats shape patterns of seed rain, factors that affect the use of an area by these animals will influence the numbers and types of seeds that are brought in. It is well known that existing shrubs or trees in a paddock are used as perches by birds (who defecate while they're having a rest) and so can act as foci for seed input.



*Artificial perches provided perching sites for birds at the sites.*

### ***Artificial perches & water troughs – park benches & bubblers for birds***

In order to provide perching sites in paddocks, 3-4 m high *Alphitonia* saplings were cut, pruned and embedded in the ground, as shown in the photo. There were nine of these perches at each of the three sites that were monitored during this work (two sites at Cloudland (Dave Hudson and Robyn Land) and one at Ringtail Crossing (Mark and Angela McCaffrey)). All sites abutted extensive areas of remnant upland rainforest.

Water troughs were also located at the base of every perch to provide drinking water and baths for birds. The intention was to attract birds to the perches and water troughs and

then to monitor which seeds were brought in around these features. Seeds were concentrated in troughs, and most of our information about the seeds birds delivered to sites is from those found in water troughs. As it turned out, birds such as pied currawongs (*Strepera graculina*) made good use of the water troughs, especially to assist their regurgitation of seeds. Between October 2012 and November 2013, seeds were strained out of the water in the troughs once or twice a month and then identified.



*Water troughs at the base of each bird perch provided drinking water and bird baths.*

### ***Native plant species dominate seed rain***

So far, almost 14 000 seeds have been collected from under the artificial perches. There has been substantial variation between months in the numbers of seeds collected at each site. Peaks in numbers of seeds were usually due to massive numbers of one or two species (notably sarsaparilla *Alphitonia petrei*, celery wood *Polyscias elegans*, bleeding heart *Homalanthus novoguineensis* and/or the introduced wild tobacco *Solanum mauritianum*).

To date, 41 native and 4 introduced species have been identified among the seeds in traps. Among native species, the most common seeds were typically very small-seeded (i.e., figs *Ficus* species, sarsaparilla, celery wood and bleeding heart). This is usual for the plants that colonise early stages of regeneration. However, several other seeds that were common in water troughs were larger (i.e., >10mm diameter), including brown quandong *Elaeocarpus ruminatu* white quandong *E. foveolatus*, brown bollygum *Litsea leefeana* and kerosene wood *Halfordia scleroxyla*.

Overall, there was a much higher number of native than introduced species trapped at all three sites. However, in late 2013 there was a shift to seed rain dominated by introduced species (either wild tobacco or lantana *Lantana camara*). This is likely to have been the result of temporary, seasonal fruiting patterns and ongoing work will show how this changes over the longer-term.

### ***Ongoing work and contact details***

Seed collection for this project is ongoing and forms part of a large project that continues to investigate seedling recruitment, responses to management of grasses, vegetation structural change, site condition assessment, seedling predation by herbivores and bird activity in the sites. Putting all of this information together will give us a clearer idea of what might be done to assist natural processes of rainforest regeneration on abandoned cleared land. For more information about this work, contact the project leader Carla Catterall [c.catterall@griffith.edu.au](mailto:c.catterall@griffith.edu.au)



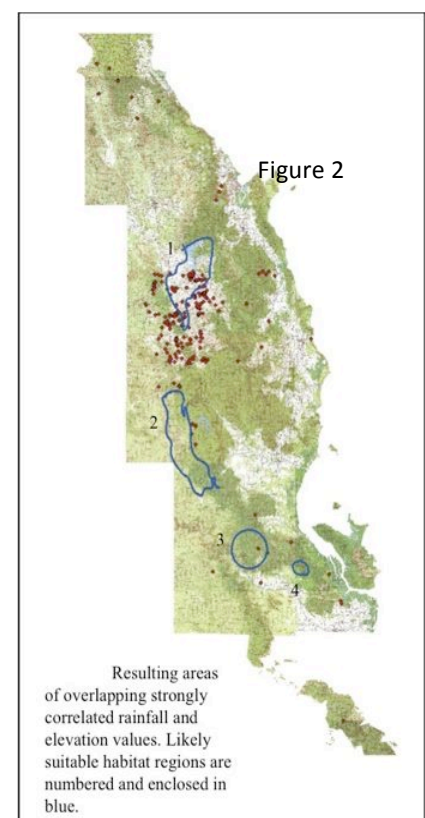
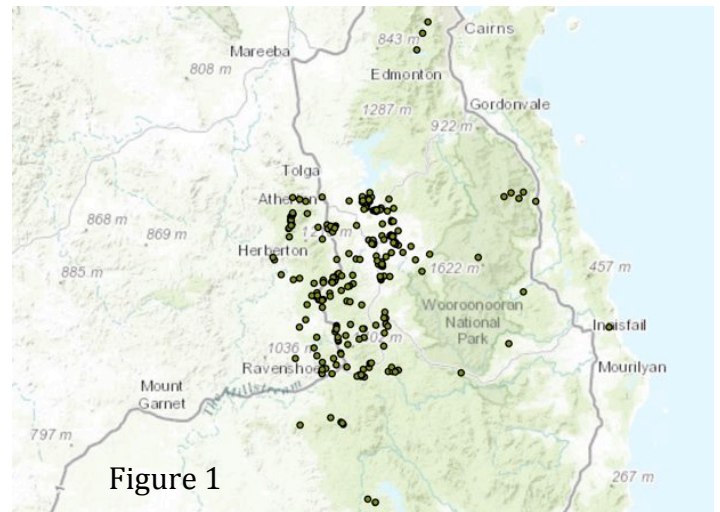
# Finding a Home Where Tree Kangaroos Roam: A Spatial Analysis of Current and Future Habitat using ArcGIS

By: Erin Emmons and Wes Hauser

This past November at the School for Field Studies we participated in directed research projects under the guidance of Dr. Sigrid Heise-Pavlov, studying Lumholtz's Tree Kangaroo (LTK). Using data from various government and community sources, our studies mapped the current distribution and assessed habitat requirements of the species using ArcGIS software. We also identified areas of likely suitable habitat for future LTK surveys.

The current distribution of Lumholtz's Tree-Kangaroo was found to be largely centered on the Atherton Tablelands (Figure 1) while several outliers persisted North near the Daintree area and South around Wallaman Falls. The habitat requirements for the species were assessed using various habitat maps juxtaposed against our compilation of LTK sightings. Vegetation type, elevation, and annual rainfall were found to be most correlated with LTK presence. While most LTK sightings occurred within cleared areas, those found within rainforest vegetation were mainly sighted in Complex Notophyll and Mesophyll Vine Forests (Types 5 and 1b respectively). LTK occurrences were also linked with areas that possessed higher elevations (685-882m) and moderate annual rainfalls (1600-2400mm). Using these most strongly correlated values of elevation and annual rainfall as predictor variables, four areas were identified where these values overlapped (Figure 2). These areas have been identified as regions of likely suitable habitat, and suggested for future LTK surveys.

Our results may inform future research projects and conservation measures surrounding LTK. In particular, these findings will contribute to the goals of the Tree-Kangaroo and Mammal Group's *Community Action Plan for the Conservation of Lumholtz's Tree-Kangaroo*. By providing accurate data on the species' distribution and habitat



requirements, conservation measures can be more efficiently and effectively employed to mitigate the effects of road collisions, predation, and habitat loss. For example, this information can spark the reevaluation of LTK's conservation statuses which are currently listed as 'near-threatened' in Queensland but 'of least concern' for Australia. It is important to align these classifications with accurate information on the species in order to best develop future conservation strategies. Our research further encourages this aim by indicating new areas of "likely suitable habitat" for LTK. Ultimately, we hope that our project raises awareness for the current threats Lumholtz's Tree-Kangaroo is facing, and the need for more information on this species.

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## **Mortality Report: Calendar Year 2013**

*By Amy Shima, D.V.M.*

For calendar year 2013, a total of 12 deaths (3 female, 9 male) were reported to me as part of an on-going project looking at mortality in Lumholtz tree-kangaroo. Of these animals, 7 died from injuries sustained by being hit by vehicles and 1 from injuries due to attack by farm dogs. There was 1 animal whose cause of death has yet to be firmly identified. The remaining 3 deaths occurred in animals held by carers after prolonged illnesses and treatment. One animal was an old (13 years) male.

Whenever possible, post-mortem examinations were performed on animals in an effort to learn more about their injuries, health status and other biomedical characteristics. Looking at dead animals may seem a bit macabre and gruesome, but it is a way in which the deaths of these animals can help contribute to what we know about them and help guide us as to how we can better protect and care for them.

Please note that there were quite likely to have been other deaths in Lumholtz tree-kangaroos during 2013 which were not reported to nor investigated by me.

The work on tree-kangaroo mortality continues in 2014 as part of a PhD project with emphasis on investigating potential diseases, 'normal' gut flora (the bacteria, yeast, parasites and protozoa which inhabit the gastrointestinal tract of tree-kangaroos) as well as other aspects of the health status of free-ranging Lumholtz tree-kangaroos.

Reporting dead tree-kangaroos to me allows me to record gps coordinates and collect carcasses and helps me obtain the best possible laboratory samples for analysis. If you see a dead tree-kangaroo, please ring me on: 0499-180-961 as soon as possible. The sooner I hear about a dead tree-kangaroo the better the chance there is of obtaining higher quality biological samples. Detailed

information as to the location of the animal (nearest cross-roads, mile marker or other landmark) is extremely helpful when reported a dead tree-kangaroo.

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## **On-going call for Volunteers to work the TKMG Market Stall**

*By Amy Shima, Simon Burchill & Ceinwen Edwards*

As many of you are aware, the Tree Kangaroo and Mammal Group hosts a market stall every month at the Yungaburra Markets, held on the 4<sup>th</sup> Saturday of the month at Bruce Jones Park in Yungaburra. For the past few years, Simon Burchill and Ceinwen Edwards have been the “regulars”--setting up the marquee, putting out information pamphlets and merchandise and interacting with the public. We’d love it if a few more members would get involved and volunteer to help out with market day. If you can even spare an hour to stop in at the stall and give Simon & Ceinwen a break, it would be greatly appreciated. The market stall is a great way for TKMG to raise awareness about the tree-kangaroos (and raise a little money, too). It’s a fun morning (although it is an early start). You can usually take a break from your duties and explore the market for a while when things are quiet at the stall. Bring a folding chair to sit on, a smiling face and friendly demeanor—it’s easy and fun. For more information, or to volunteer, please contact Simon Burchill (0407-091-347 or [sbburchill@gmail.com](mailto:sbburchill@gmail.com)) or Ceinwen Edwards (4097-6572).

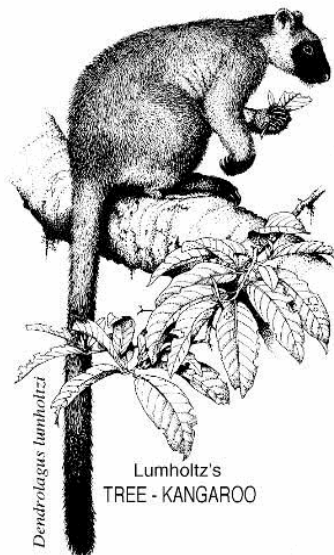
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## **Social Media: Do you use Facebook?**

If you are a tech-savvy person and like to utilize social media such as Facebook, consider ‘liking’ the Tree Kangaroo and Mammal Group Facebook page. You can use it to keep on top of the latest information about what’s on with TKMG as well as other postings of interest to our members. TKMG is exploring how we can use social media to stay better connected with our members and help them engage with the group. If you have any thoughts on this, we’d love to hear from you. Send an e-mail to Simon Burchill, TKMG Secretary ([sbburchill@gmail.com](mailto:sbburchill@gmail.com)) or contact any of the Committee members to let us know your thoughts on social media and the TKMG.

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*The opinions expressed in “Mammal Mail” are not necessarily those of the Tree Kangaroo and Mammal Group. Your comments on the newsletter and suggestions for future articles are always welcome. Please e-mail: [tkmgnewsletter@gmail.com](mailto:tkmgnewsletter@gmail.com)*



## Mammal Mail

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<http://www.tree-kangaroo.net>

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A Big THANK YOU to Pesavento Web Development & Marketing for your invaluable assistance in enabling TKMG to get their message out to the community and to the world.